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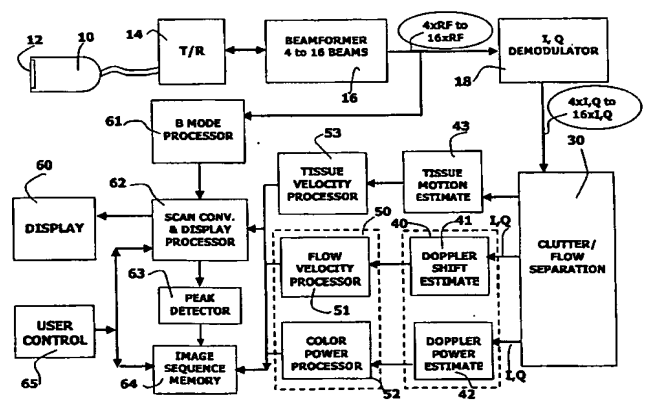
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(54) Title: PHASED ARRAY ACOUSTIC SYSTEM FOR 3D IMAGING OF MOVING PARTS



(57) Abstract: The invention relates to an ultrasound phased array imaging system comprising: a probe (10) with a 2-D array of transducer elements (12) for acquiring 3-D ultrasound data of a volume of a body, including moving tissue and fluid flow; a beamforming system (10, 12, 14, 16) for emitting and receiving in real time ultrasound beams in said volume, which provides, in real time and in 3-D, more than one spatial receive beam signals for each transmission beam within an ensemble length of more than two temporal samples, among which the receive flow beam signals and the receive tissue beam signals are substantially temporally uncorrelated but spatially correlated; separation means (30) for processing in real time the receive beams signals, comprising adaptive spatial tissue filtering means using simultaneously more than one spatial receive beam signals acquired in 3-D within the ensemble length of more than two temporal samples, which separation means analyzes temporal variations of the respective successive receive signals and extracts flow receive beam signals from spatial combinations of receive beam signals; processing means (40, 50) and display means (62, 60) for processing flow Doppler signals and for displaying images based on said processed flow Doppler signals.

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